

BENCHMARKS

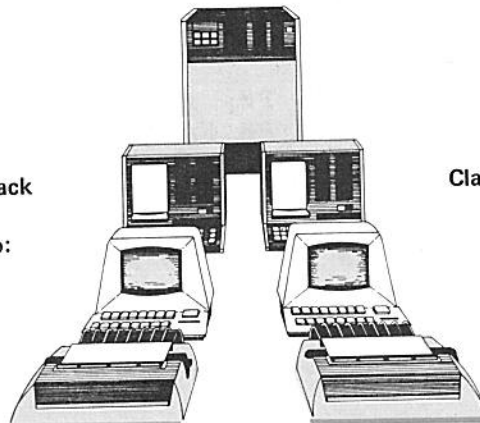
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BENCHMARKS Reader/User feedback is encouraged.
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Services Available To Users Of The NTSU Computing Facilities

All people mentioned below may be contacted by calling
(817) 565-2324:

Information and Project Numbers- Carolyn Goodman in the
Computing Center reception Area, ISB 119.

Newsletter Questions/Contributions/etc. - Claudia Putnam.

Statistical/Research Support (provided for graduate students
and faculty members) - Bob Brookshire, George Morrow,
Claudia Putnam, and Mohamad Salahshoor.

Non-Research Student Programming Problems - student consultants
from the Computer Science Department are located in GAB
333. Student consulting provided by the College of
Business is available at the BA Computing Access Facility.

JCL and Debugging Problems - Mohamad Salahshoor.

Pre-Research Counseling, Including Survey Instrument Design -
Bob Brookshire, George Morrow, and Claudia Putnam.

Data Entry to MUSIC, Key punch Requests and Questions Regarding
Layout of Key punch Sheets; Interpreting - Betty Grise,
ISB 227.

Test Scoring and Analysis - Betty Grise.

Academic Timesharing Information and/or Problems HP/2000 and
AS/5000 MUSIC (McGill University System for Interactive
Computing) information and problems, including terminal
problems - Mohamad Salahshoor.

Administrative Applications - Coy Hoggard.

AS/5000 Computer Hardware/Software/Billing Problems - Sandy
Franklin.

JOB Submission and Retrieval - RJE Operators.

Summer Computing Hours

Computing facilities will be open during the following times
throughout the Summer (not applicable to holidays):

Computing Center RJE: 7 AM - 4 AM, Monday-Friday; 8 AM-MN
Saturday; Noon-MN Sunday.

College of Business RJE: 8:15 AM - MN, Monday-Saturday;
12:15 PM - MN, Sunday

Media Library (GAB): 7:30 AM - 9 PM, Monday-Thursday;
7:30 AM - 6 PM Friday; CLOSED Saturday;
4-9 PM Sunday.

The Computer Room and student keypunch/terminal area (ISB) are
open 24 hrs/day Mon.-Fri., 8 AM-MN Sat. and Noon-MN Sun. System
Backups (see this issue for schedules) and backlog processing
are done between the hours of 8 AM and Midnight, Mon.-Sat..

GETTING TO KNOW US

The past two issues of the newsletter have listed professional activities by various members of the Academic Computing Staff. Specifically, it was noted that, recently, Tom Madron, Manager of Academic Computing, has had a book and an article published; Steve Minnis, Technical Support Coordinator, has had an article published; and Bob Brookshire and Claudia Putnam gave a presentation at a SAS User's Group conference.

In April, Bob Brookshire presented another paper, this one at the Midwest Political Science Association meeting in Chicago, entitled "Changes in House Career Patterns Over Time," which brings us to the point of this article. What, you may ask, is a person who works at the Computing Center doing giving a paper at a political science convention? The answer is this, there are many ways to get into computing, and they are not always through the discipline of Computer Science.

The staff of Academic Computing Services have varied backgrounds:

- Bob Brookshire has a Ph.D. in Political Science;
- Dan Hood has a M.C.S. (Master of Computer Science)
- Tom Madron has a Ph.D. in Political Science
- Mike Maner has a B.S. in Biology
- Steve Minnis has a B.S. in Mathematics;
- George Morrow has a M.S. in Mathematics
- Tim Puckett has a B.S. in Computer Science and Mathematics
- Claudia Putnam has a M.A. in Sociology
- Monamad Salahshour has an M.B.A. .

All of these people became involved in computing for various reasons, but at a very basic level, a common experience can be linked to them all: they needed, at one time or another, to use the computer, and when they did they ended up liking it.

So, those of you out there who feel like you're in a Butterfly McQueen sound alike contest ("GOSH Ms. Scarlett, I don't know nuthin 'bout usin no computers!"), take heart. Tomorrow is another day. You too, could end up liking it, and along the way you might even end up liking us.

THE VAX 11/780'S

On June 5, the VAX 11/780 systems A and B became available for users. The VAX 11/780 is a powerful "mini" computer, which provides fast interactive processing in a virtual memory environment. Both systems are configured with two megabytes of memory and 124 megabyte system disks. They share two 516 megabyte disk drives, and a 6250/1600 BPI tape drive.

These VAX computers run under the VMS operating system, a software product from Digital Equipment Corporation. This operating system is very user-friendly, offering extensive interactive help files and computer-assisted instruction modules for the operating system commands and the editor.

The VAX computers currently support several popular programming languages, including FORTRAN, BASIC, COBOL, ADA, and SNOBOL. The PASCAL language will also be installed soon. The MINITAB statistical package is available for interactive data analysis.

User IDs for the VAX computers are available to faculty, staff, graduate students, and undergraduate students who are enrolled in classes which require the use of these machines. See the receptionist in the Computing Center (ISB) for applications.

If you are not sure if whether or not you want a VAX ID, or you want to "play" on the VAX(s) while you are waiting for you ID-code to be assigned to you, you can log on to a demonstration ID-code called TEST. To do this, gain access to one of the VAXs (see the article on the Local Area Network, below) and enter the word TEST when the prompt Username: appears on the screen; depress the <RETURN> key and enter the word TEST again in response to the prompt Password;; depress the <RETURN> key once more, and you will be successfully logged-on. (The <RETURN> key must always be depressed, unless otherwise instructed, in order to relay your typed commands to the VAX operating system).

Once you have logged on to a VAX, make sure and issue the NEWS command to get information about system status and features. You can then enter the command VMSCAI to learn about the VMS operating system. The command EDTCAI will get you into a Computer-Assisted Instruction course on the VAX Editor. Depressing function key 3 (f3) will get you back to the main menu from both of the above mentioned CAI courses.

THE LOCAL AREA NETWORK IS OPERATIONAL ... IN SOME PLACES, AT LEAST

The Local Area Network (LAN) that you've heard so much about is functioning in the following locations:

- Administration Building
- Business Administration Building (BA)
- General Academic Building (GAB)
- Information Science Building (ISB)
- Music Building
- Physics Building
- Speech and Drama Building
- Wooten Hall

The following is a reprint of a reference card that is available free of charge from the Computing Center reception area (ISB).

QUICK REFERENCE GUIDE TO THE NPSU LOCAL AREA NETWORK

CALL COMPLETED TO 5000,1

The Local Area Network allows users to access various computer systems without the use of phone modems. Terminals hooked-up to the network should display a pound sign (#) when the unit is first turned on and the <RETURN> key is depressed.

hit the <RETURN> key when this message appears. A period (.) should be displayed in the first column. You will then be under the VM/370 operating system which supervises other systems (MUSIC, CMS). Users will be able to access the following systems running under the supervision of VM/370:

ACCESSING COMPUTER SYSTEMS -- HOW TO OPEN A SESSION

The "CALL" command is used to access various computer systems on campus. The following chart displays the systems that users may access and the proper call command for each:

MUSIC	To access MUSIC, type "DIAL MUSIC". The MUSIC logo will appear on your terminal; you may then proceed by entering your ID code and password.
CMS	To access CMS, simply enter the logon command and your password when requested by the system.

COMMAND	WILL ACCESS
CALL 5000	AS5000 computer
CALL 2000	HP2000 minicomputer
CALL A780	*VAX11/780A computer
CALL B780	*VAX11/780B computer

The appropriate call command should be entered while the pound sign (#) is displayed. (EXAMPLE: Type "Call 5000", then hit the <RETURN> key.) If all the available ports are busy, the following message will be displayed:

UNABLE TO OPEN SESSION -- REMOTE
PORTS BUSY

If this occurs, try again in a few minutes. If you receive the message "NO RESPONSE FROM UNIT," you have either called an invalid address or the system is not accessible at that time (system failure, maintenance, etc.) If you are allowed to open your session, the following logo will appear: (using requested access to the AS5000 as an example)

Users accessing the HP2000 or the VAX11/780's should use normal logon procedures when the CALL command has been accepted. When you sign-off from your MUSIC, CMS, or HP accounts (using normal logoff procedures associated with each), your session should automatically be closed. The following message should appear:

#SESSION 1 CLOSED TO 5000,1

To access either MUSIC, CMS, or the HP2000 again, simply follow the procedures that have been outlined above. ALWAYS CHECK TO SEE THAT YOUR SESSION HAS BEEN CLOSED BEFORE TURNING OFF YOUR TERMINAL. VAX11/780 system users should also follow normal logoff procedures; however VAX users must close their sessions AFTER logging off to their accounts. Please consult the procedures that are outlined in the last section of this guide. If users of the other computer systems do not receive confirmation of a closed session, they should consult this section, too.

CLOSING SESSIONS

After logging off to a VAX11/780 account, YOU MUST ALSO CLOSE YOUR NETWORK SESSION (i.e. -- terminate your access to the VAX11/780 computer system.) Users of the AS5000 and HP2000 systems may also follow these procedures if their sessions are not terminated after initiating normal logoff procedures. Failing to close sessions results in available ports being tied-up and prevents other users from having access to these systems.

The following procedure should be used to terminate your sessions:

(1.) After issuing the logoff command, press down the <ESC> key (escape key) and hit the <RETURN> key. No input will be printed on the screen, but the # sign should immediately appear. If it does not, try hitting the <ESC> key twice before pressing <RETURN>.

(2.) Type in DONE and hit the <RETURN> key twice. The following message should appear (using VAX11/780A access as an example):

```
#SESSION 1 CLOSED TO A780,1
```

The # sign will also be displayed immediately following this message.

(3.) You may then turn off your terminal or begin the access procedures again.

ALWAYS BE SURE TO CLOSE
YOUR SESSION !!!

This represents preliminary documentation of guidelines in using the Local Area Network. Testing and experimentation with new procedures are in process which may replace current procedures at a later date.

Users may also enter a HELP command when the # sign is displayed to get a listing of network parameters (baud,echo,etc.) currently available. Questions about these parameters and others which may not be listed should be directed toward Computing Center staff by calling extension 2324.

*The VAX 11/780's are accessible only from the LAN. If you want to use MINITAB, CALL A780. If you want to use ADA, CALL B780.

FLOW CONTROL

The Local Area Network and devices attached to it (except for the HP2000) use XON/XOFF as a flow control. The flow control allows all such devices to run at high rates of speed without overflowing their internal buffers. XON instructs the transmitting device to START sending; XOFF instructs the transmitting device to STOP sending. Normally, XON and XOFF are automatically programmed for all operating devices. However, users may at times find it convenient to issue XON/XOFF commands themselves. For instance, when accessing either the AS5000 or the VAX11/780's, you may want to stop output listings at your terminal for inspection purposes. This can be accomplished by issuing an XOFF command from your terminal. To continue the listing, you may then enter an XON command. These commands are issued using the following key sequences:

XOFF: <CTRL> S key sequence

XON : <CTRL> Q key sequence

(Hold down the <CTRL> key and simultaneously press the letter key)

In addition, if you experience problems with your terminal "locking-up" (it ceases to accept input commands or stops functioning in the middle of a session), try using <CTRL> Q before calling the Computing Center for assistance.

* * * * *

*
* O P E R A T I O N S *
*
* * * * *

Backup Schedule for OS/MVT

OS/MVT disk packs (Academic and Administrative) are backed up daily, Tuesday through Saturday, from 4-6:30 AM, and Sunday from Midnight to 3 AM. A backup of all the operating systems and their contents is done once every two weeks at some low activity period over the weekend.

AS/5000 Performance Statistics for April, May

April Performance Summary*

System Type	Operating Hours Scheduled (OHS)	Maintenance Hours Planned (MHP)	Production Hours Planned (PHP)	Maintenance Hours Unplanned (MHU)	Actual Production Hours (APH)	System Uptime (SU)
VM/SP	720	3.87	716.13	50.82	665.31	92.9%
MUSIC	720	50.41	669.59	55.15	614.44	91.8%
OS/MVT	658	4.60	653.40	42.63	610.77	93.5%
COMPLETE	260	0.27	259.73	18.64	241.09	92.8%
ADABAS	247	0.30	246.70	16.61	230.09	93.3%

Lost Productivity Hours can be contributed to the following key causes*:

CPU, Tape, and Disk Subsystems (NAS)

1. CPU Interruptions	10.35 Hours
2. 7330 DASD Failures	0.65 Hours
3. Scheduled Maintenance	2.47 Hours
TOTAL	13.47 Hours

Electrical & A/C Interruptions

1. 600 Amp. Main Breaker Failure	40.05 Hours
----------------------------------	-------------

Unit Record Devices (IBM)

1. 3203 Printer Installation	3.11 Hours
------------------------------	------------

Terminal Control Systems (MEMOREX)

1. 1270 TCU Malfunctions 2.02 Hours

Miscellaneous

1. Undetermined Causes for System Restarts 3.53 Hours
 2. MVT Initiator Failures 2.12 Hours
 3. COM-LETE Program Failure 1.70 Hours
 4. COM-LETE/ADABAS Program Maintenance 0.47 Hours
 5. Convert to Daylight Saving Time 0.17
 6. VM/SP Program Fix 3.00 Hours

TOTAL 10.99 Hours

GRAND TOTAL 69.64 Hours

May Performance Summary*

System Type	Operating Hours Scheduled (OHS)	Maintenance Hours Planned (MHP)	Production Hours Planned (PHP)	Maintenance Hours Unplanned (MHU)	Actual Production Hours (APH)	System Uptime (SU)
VM/SP	744	1.13	742.87	31.56	711.31	95.8%
MUSIC	744	30.28	713.72	91.47	622.25	87.2%
DS/MVT	625	1.82	623.18	31.38	591.80	95.0%
COMPLETE	270	2.00	268.00	17.32	250.68	93.5%
ADABAS	268	2.00	266.00	18.52	247.48	93.0%

Lost Productivity Hours can be contributed to the following key causes*:

CPU, Tape, and Disk Subsystems (NAS)

1. CPU Interruptions 14.59 Hours
 2. 7330 DASD Failures (MUSIC1 & MUSIC5) 40.63 Hours
 3. Scheduled Maintenance 1.82 Hours
 TOTAL 57.04 Hours

Electrical Interruptions

1. Power Failure (1 Hit - Center Closed) 8.66 Hours

Unit Record Devices (IBM)

1. IBM 2821 I/O C.U. Powered Down by F.E. 0.30 Hours

Terminal Control Systems (MEMOREX)

1. 1270 TCU Malfunctions 16.84 Hours

Miscellaneous

1. Undetermined Causes for System Restarts 5.26 Hours
 2. MVT Initiator Failures 0.90 Hours
 3. Restoring Files on MUSIC1 & MUSIC5 7.50 Hours
 4. COM-LETE/ADABAS Program Maintenance 2.98 Hours
 5. MUSIC Accounting Files Full 8.83
 6. VM/SP Program Fix 1.86 Hours

TOTAL 27.33 Hours

GRAND TOTAL 110.17 Hours

*NOTE 1: CPU availability will be approximately equal to VM's % Uptime.
 *NOTE 2: SU = APH/PHP
 *NOTE 3: APH = PHP - MHU
 *NOTE 4: PHP = JHS - MHP
 *NOTE 5: JHS = PHP + MHP
 *NOTE 6: MUSIC's PLANNED MAINTENANCE HOURS includes 45.81 hours of system backup time in April, and 24.37 hours of system backup time in May.

*Lost productivity is calculated on the greatest amount of elapsed time that any one of the production systems was unavailable for scheduled operation.

Secure Output Policy

The SECURE output option provides higher security for printed output than the self-help public access boxes. It is intended to be used for critically important output, such as the final printout of a class project, or other non-duplicatable output. To increase efficiency of filing and retrieval, SECURE should be specified only when absolutely necessary.

To specify SECURE for your printed output on MUSIC, designate TYPE='SECURE'. If you are using punched cards, use an OS end-of-file card (the pink ones) specifying SECURE at the end of your card deck.

This output will be filed separately from regular STUDENT and FACULTY printouts, and an ID must be shown by the programmer which matches the name on the output when the printout is to be retrieved.

If you desire to have your SECURE printout picked up by someone other than yourself, a list of persons so designated and any date restrictions placed on this permission must be signed and sent to Lynne Adkins, NTSU Computing Center, before the person arrives to retrieve the SECURE output.

```

* * * * *
*           *
*       S P S S       *
*           *
* * * * *

```

SPSS-X Installed

SPSS-X has been installed and can be accessed by inserting a // EXEC SPSSX card directly after the JOB card in your program stream. As has been mentioned before, it will be necessary for everyone who plans to use SPSS after September 1983 to become familiar with the format of SPSS-X, because at that time, Version 9.1 will be deleted from the system (see BENCHMARKS Volume 3, Number 8, page 13 for a lengthy discussion about the differences between SPSS and SPSS-X).

Unfortunately, there are some "bugs" that have not been exterminated from SPSS-X yet, so "let the user beware.!" Following are some of the known bugs (we'll let you know if they get fixed and/or if any more turn up):

- REPEATING DATA may read the wrong fields or skip fields when more than one REPEATING DATA command is used in a FILE TYPE MIXED structure.
- The SPSS-X PROC was installed with the NUMBERED option OFF, however, SPSS-X acts like it is ON, sometimes. To get around this until it gets fixed, do not type anything past column 72.
- A mysterious error appears which looks like this:

```
>ERROR 3
>AN SPSS-X PROGRAM ERROR OCCURRED:  FREMEM FOUND FREE SPACE CHAIN
DAMAGE.
>PLEASE NOTIFY YOUR LOCAL SPSS-X COORDINATOR.
>THIS IS A CATASTROPHIC ERROR FROM WHICH SPSS-X CANNOT RECOVER.
>SPSS-X CANNOT CONTINUE.
```

Your response to this should be to get the printout and bring it to Claudia Putnam in the Computing Center (ISB 130).

The first job you run with SPSS-X could be a job to find out more about the program and how things are set up here at NTSU. This job would consist of these lines, beginning, of course, with a JOB card:

```
// EXEC SPSSX
INFO OVERVIEW ALL
SHOW ALL
```

This will give you an overview of SPSS-X and show you the values of it's various parameters (some of which you may override, if you wish).

Making the Transition to SPSS-X

This article is an adaptation of a portion of a booklet given out by SPSS Inc. at a seminar they gave in Dallas to introduce users to SPSS-X.

Outline

Most jobs prepared for SPSS Release 9 will require some minor modifications to run under SPSS-X. This discussion identifies the areas where changes will need to be made and suggests approaches for facilitating the transition to SPSS-X syntax.

There are four major areas in which SPSS jobs might require modification to run under SPSS-X:

- File definition. DATA LIST replaces VARIABLE LIST and INPUT FORMAT.

- **Input and Output Files.** In SPSS-X the FILE HANDLE command and the FILE= subcommands are used for input and output files (since we run on OS/MVT, we do not have to use the FILE HANDLE command).
- **Transformations.** There are no "*" commands such as *RECODE or *IF in SPSS-X. The TEMPORARY command is used instead. The ANY and RANGE functions replace implied operators (such as OR).
- **Obsolete Commands.** Some SPSS commands have become obsolete in SPSS-X. In addition to the special case of the "*" form of the transformations, commands such as LIST CASES no longer exist. SPSS-X User's Guide documents these changes in Appendix A, "Help for Old Friends."

Objective. A job will be presented in Release 9 format and then "re-vamped" for SPSS-X.

Method.

- Change FT08F001 and FT09F001 in the JCL to names that mean something to you (from 1 to 8 characters, beginning with an alphabetic character).
- Convert the VARIABLE LIST and INPUT FORMAT commands to one DATA LIST command containing the list of variables, the formats, and two new subcommands: FILE= to identify the DD name of the input dataset, and RECORDS to specify the number of records per case. (Remember, in SPSS-X, you don't have to start specification fields in column sixteen, continuation lines just have to start in some column other than one).
- Read the Company and City names with the correct length of the name field instead of breaking it up into eight parts.
- Remove the unnecessary INPUT MEDIUM and PRINT FORMATS commands.
- Replace the LIST CASES procedure with the LIST procedure.
- Replace the SAVE FILE command with a SAVE command and OUTFILE subcommand.

Defining and Listing Data with Release 9

```
//SPSS9 JOB (9999-9999,:30,2),'A. STUDENT'
// EXEC SPSS
//FT08F001 DD DSN=USER2.D9999.P9999.A.INDUST80,UNIT=SYSDA,
//          DISP=SHR,VOL=SER=ACAD02
//FT09F001 DD DSN=USER2.D9999.P9999.A.IND80SF,UNIT=SYSDA,
//          DISP=(NEW,KEEP,DELETE),SPACE=(TRK,)5,3,RLSE),
//          VOL=SER=ACAD02
VARIABLE LIST  NAME1 TO NAME8 CITY1 TO CITY4 STATE SALES80
                RANK80 NETINC80 EMPLOU80 EARNSH80 INDUSTRY
INPUT FORMAT    FIXED (7A4,A2,3A4,A3,A2,X,F9.0,X,F2.0
                /T13,F9.0,3X,F7.0,3X,F7.0,14X,F3.0)
INPUT MEDIUM   DISK
VAR LABELS     EMPLOY80 NUMBER OF EMPLOYEES 1980/
                EARNSH80 EARNINGS PER SHARE 1980/
                INDUSTRY TYPE OF INDUSTRY
VALUE LABELS   INDUSTRY (10) CRUDE-OIL PRODUCTION (20) FOOD
                (21) TOBACCO (28) CHEMICALS
                (29) PETROLEUM REFINING (30) RUBBER PLASTICS
                (33) METAL MANUFACTURING (36) ELECTRONICS
                (38) SCIENTIFIC EQUIPMENT (40) MOTOR VEHICLES
                (41) AEROSPACE (43) SOAPS,COSMETICS
                (44) OFFICE EQUIPMENT (45) INDUSTRIAL EQUIPMENT
PRINT FORMATS  NAME1 TO STATE (A)
MISSING VALUES EARNSH80 (-1)
LIST CASES     CASES=50/ VARIABLES=RANK80 NAME1 to NAME8
                SALES80 EMPLOY80
SAVE FILE      FORTUNE1
```

Release 9 Job Converted to SPSS-X

```
//SPSSX JOB (9999-9999,:30,2),'A. STUDENT'
// EXEC SPSSX
//DATAIN DD DSN=USER2.D9999.P9999.A.INDUST80,UNIT=SYSDA,
//          DISP=SHR,VOL=SER=ACAD02
//FORTUNE1 DD DSN=USER2.D9999.P9999.A.IND80SF,UNIT=SYSDA,
//          DISP=(NEW,KEEP,DELETE),SPACE=(TRK,)5,3,RLSE),
//          VOL=SER=ACAD02
DATA LIST FILE=DATAIN RECORDS=2/
                COMPANY CITY STATE SALES80
                RANK80 NETINC80 EMPLOU80 EARNSH80 INDUSTRY
                (A30,A17,X,F9.0,X,F2.0
                /T13,F9.0,3X,F7.0,3X,F7.0,14X,F3.0)
VAR LABELS     EMPLOY80 NUMBER OF EMPLOYEES 1980/
                EARNSH80 EARNINGS PER SHARE 1980/
                INDUSTRY TYPE OF INDUSTRY
VALUE LABELS   INDUSTRY (10) CRUDE-OIL PRODUCTION (20) FOOD
                (21) TOBACCO (28) CHEMICALS
                (29) PETROLEUM REFINING (30) RUBBER PLASTICS
                (33) METAL MANUFACTURING (36) ELECTRONICS
                (38) SCIENTIFIC EQUIPMENT (40) MOTOR VEHICLES
                (41) AEROSPACE (43) SOAPS,COSMETICS
                (44) OFFICE EQUIPMENT (45) INDUSTRIAL EQUIPMENT
MISSING VALUES EARNSH80 (-1)
LIST VARIABLES=RANK80 NAME1 to NAME8
                SALES80 EMPLOY80
SAVE OUTFILE=FORTUNE1
```

NOTE: Because of differences in the way SPSS and SPSS-X process files, it is a good idea to change old SPSS system files into SPSS-X system files as soon as you start using SPSS-X continuously.

```
* * * * *
*           *
*       S A S       *
*           *
* * * * *
```

SAS82.3 Installed

SAS Version 82.3 has been installed and will become the default version as soon as it has been tested for a while. You can help by running jobs against it instead of our old version of SAS. To do this, change // EXEC SAS to // EXEC SAS823. Notify someone in Academic Computing (565-2324) if you think that SAS82.3 isn't working properly.

PROC REG: an Alternative to GLM

Those of you who are using PROC GLM in SAS to carry out multiple regression analysis will be happy to hear of a new, improved SAS procedure for regression: PROC REG. This procedure is designed specifically for regression analysis, and provides many statistics not available in PROC GLM, such as the $X'X$ matrix and its inverse, the $X'Y$ and $Y'Y$ matrices; sequential sums of squares; standardized regression coefficients; tolerance values for the estimates; the covariance and correlation matrices of the estimates; and collinearity analysis.

PROC REG also provides many features which can aid you in the analysis of residuals, including predicted values, residuals, confidence intervals, Durbin-Watson statistics, influence analysis and partial regression leverage plots. Many statistics from the regression analysis may be output to SAS data sets, and parameter estimates may be restricted within user-specified bounds. PROC REG is a procedure that is new with release 82 of SAS. For more information, see the SAS User's Guide: Statistics, which is available in the University Store.


```

* * * * *
*           M U S I C           *
* * * * *

```

TO CALL MUSIC, DIAL: 565-3499;3989;3999;4025;4030.

MUSIC Backup Hours

Following are the scheduled hours for the MUSIC backup. A message will be sent to all users signed-on to MUSIC approximately 10 minutes before the backups are begun, and will be in the form: ** MUSIC SHUT DOWN AT xxxxx AM - SCHEDULED BACKUP ** To find out the backup hours while signed-on to MUSIC, enter HELP HOURS

MUSIC Backup Hours

Tuesday	3 AM (for about 3 hours)	Weekly Backup
Wednesday-Saturday	4 AM (for about 2 hours)	Daily Backup
Saturday	Midnight (for about 2 hours)	Daily Backup

Metro Number Still on Hold

The last BENCHMARKS reported that eight metro lines had been installed and would be available on or about May 6, 1983. Unfortunately, due to several unforeseen circumstances, the lines still are not functioning. We expect them to become operational any day now, so don't give up. We will try to keep you posted through MUSIC NEWS.

Stop Unwanted Scrolling, Take Two

The last issue of BENCHMARKS confidently announced that, you too, can stop unwanted scrolling on your terminal. If it has a control key <CTRL>, that is. You can depress the <CTRL> key and then, while still holding it down, depress an S or a Q depending on what you want to do. The wrong sequence was announced last time, but now, here it is THE TRUTH: <CTRL> S will stop your output from scrolling off the screen, and <CTRL> Q will start it back up again.

New MUSIC Utilities

#FILEDELETE

The #FILEDELETE utility is designed to help MUSIC users to purge selected Save Library files under their Id-code based on specified prefixes, thus freeing the space quota assigned to their ID for further use. This utility can be accessed by entering the #FILEDELETE command at your terminal after you log-on to MUSIC. You will be prompted to enter information on the following parameters:

- a) CDPREF Prefix for the user Id-code (1 to 4 characters).
Default value is the user Id-code.
- b) NMPREF Prefix for the file name (0 to 17 character). The files whose names start with the characters specified in the NMPREF, will be selected for deletion. Note that if NMPREF is all blank, it is assumed to match all files in the Save library. There is no default value.
- c) DELETE determines whether or not selected files are to be deleted. IF .TRUE. is specified the selected files are purged, and their names and the amount of space freed will be printed. If .FALSE. is specified no files are purged, but the file names will be printed.

For example: if a user specified the following parameters: CDPREF='xx04', NMPREF='abc', delete=t all files which belong to the code 'xx04' and have names starting with 'xyz' will be deleted. The name and the amount of the freed space will be displayed.

For more information enter #FILEDELETE HELP while in command mode (*GO).

#SUPRCD

The #SUPRCD utility is designed to be used by a COURSE INSTRUCTOR to assign a new PASSWORD to an Id-code. The SUPERVISOR CODE, the Id-code which was assigned to the instructor when multiple Id-codes for a course were requested, can inspect and modify only the Id-codes in its course or project group. These are Id-codes which start with the same first two characters as the SUPERVISOR CODE.

To execute this utility enter #SUPRCD while in command mode (*GO). The following commands can be entered:

CHANGE xxxxsss	PW=pppppp	to change the password for xxxxsss.
HELP		to display help information.
END		to exit from the program.

Where:

- 'xxxx' Is the first 4 characters of the Id-code,
- 'sss' Is the 3 character of the subcode,
- 'pppppp' Is the new password (1 to 6 characters) to be assigned.

Operational Procedure HELP File Available

A new HELP file is available on MUSIC. It is accessed by entering HELP OPER, and it is meant to provide guidelines for using the computing facilities here at NTSU. The topics covered are:

1. Hot News: New Policies and Memos
2. Processing Guidelines/Policies
3. JOB Card Preparation
4. Forms Queue
5. Special Handling
6. JOB Classes
7. Tape Processing
8. OS Backup Hours
9. Disk Data Sets
10. Consultants
11. DIABLO Guidelines
12. Terminal Locations
13. Overview of Systems

This HELP file will be updated when necessary, so look at it periodically to see if anything has been changed or added.

```
* * * * *
*           *
*   H P - 2 0 0 0   *
*           *
* * * * *
```

TO CALL THE HP, DIAL: 565-3300;3900;3899;3966

HP 2000 Backup Schedule

Routine system backups are scheduled to be performed at the following times;

- 8:00 a.m. Monday through Friday for approximately 20 minutes.
- 4:00 p.m. Friday for approximately 1.5 hours.

HP NOTES
by
Jeff Brooks

Ninety Students May Not Need Ninety ID's

If you are an instructor applying for a set of ID Codes for the HP, remember that you may not need a separate ID for each student. Some classroom situations can be handled by one ID for the entire class, which can theoretically be accessed from different terminals by everyone simultaneously. A situation that would lend itself to this type of a system would be one in which there exists a set of programs that the student must simply execute without doing a lot of disk I/O.

The advantages of handling classroom computing this way is that there aren't as many ID Codes and passwords to keep up with and it saves the Computing Center personnel wasted time and disk space. It's up to you as an instructor to decide the sort of set-up you want to provide your students, but you should be aware of the fact that you have this alternative.

If you have a situation that can be handled by less than 1 ID Code per student call Jeff Brooks at the Computing Center (565-3885) before filling out your Service Request Form.

Accessing the HP Over the Local Area Network

The eminent implementation of the Local Area Network will, in theory at least, make each of our systems accessible from a single terminal. The HP-2000, however, has presented us with a special problem in that it does not support the Network's communications protocol (XON/XOFF) to an extent which would allow accurate data transfer at high rates of transmission. The net result of this problem is that there will be limited access to the HP-2000 over the network but only on low speed ports (300-600 Baud). Hardwired lines will probably remain hardwired with the lines presently used as telephone dial-ups being converted to the LAN.

The number of lines that will be switched over and related questions have yet to be answered, but any developments in the situation will be printed in BENCHMARKS.

```

* * * * *
*           *
*   M I C R O S   *
*           *
* * * * *

```

Micro to Micro Program Transfer by Telephone

The following article is a reprint of an article by the same name which appeared in a column entitled "MICRO BYTES" in The DPC News, the newsletter for the Data Processing Center at Texas A&M. The author is Dale L. Shafer.

The problem to be solved this month: I have a low-cost, but useful, program on my computer which I wish to transfer to another micro. That department needs to use Pascal for a research project and I have JRT Pascal. The publisher has provided permission for transfer to the other machine, so there are no legal barriers. However, I have 8" floppy disks and the other micro has 5 1/4" disks, so there is no compatible physical medium. There is no known local commercial source for JRT Pascal and, although the cost is less than \$30, published reports indicate a backlog of thousands at the publisher while awaiting a new version. Although the computers are by different manufacturers and were purchased years apart, both are running the CP/M operating system, so the Pascal compiler should work after the transfer is accomplished.

In general, the transfer of computer programs between computers can provide many problems. On large, mainframe computers, portability is best achieved by writing a high-level language and arranging the physical transfer using standard "IBM cards" or 9-track tape with a mutually agreed-upon tape density and character code. Either a card reader/punch or a 9-track tape drive costs much more than most complete microcomputer systems, so other methods must be used.

All popular micros use the ASCII character set, or can transmit and receive this character set through communications ports if so equipped (as was mentioned in February's MICRO BYTES column). The ASCII code is a seven-bit code and internally the micros use eight-bit bytes, so pure machine code must be translated before sending and restored to original form at the receiving micro. Many BASIC programs and most word processing data files also make use of the eighth bit of the byte and thus are not entirely standard ASCII. The JRT Pascal compiler is in machine code and would probably work only if every bit is unchanged, so it is essential that it be transmitted without error.

The solution to the problem of the transfer of a program between two computers in different locations in this case was to use MODEM7, a public domain program (which means "free if you can find it") available for CP/M micros. A discussion follows of the programs and equipment used in this case. The way it was used may be helpful to those who may have a similar problem. Although the distance in this case was less than 100 yards, the transfer by dial-up telephone could have been hundreds or thousands of miles simply by dialing a long-distance line instead of a campus number.

Equipment:

Two microcomputers, each equipped with a modem. Both modems are 300 baud, one with both originate and answer frequencies.

Software for communications:

MODEM7 on each micro, adapted previously for the particular communications ports of each.

Software to be transferred:

All items on the JRT Pascal distribution disk, approximately 200K.

Microcomputer equipment:

- A machine running the CP/M-80 operating system equipped with double-density 8" floppy disks with 500K capacity each; and
- Another machine, also with the CP/M-80 operating system by Digital Research, but equipped with single-density, 5 1/4" disks with 100K capacity each.

The procedure for transfer of the distribution disk by telephone is summarized as follows:

First, contact was established by voice, and we each brought up the MODEM7 program on our respective machines. Since one modem must use the "answer" frequency and the other the "originate," I agreed to use "answer" since the other modem was "originate only." Both modems were switched to "full duplex," so I chose to go to terminal mode with an echo of all characters ("E" on the modem program menu list), and the other operator chose terminal mode ("T" in the program menu).

Both modems were of the acoustic coupler type, so we then placed the telephone handsets in the modem cups. Soon the "carrier" light came on indicating we had established connection. On my micro I typed

HELLO

followed by a return and two line-feeds. I then saw, typed slowly on my screen,

LOOKS GOOD - OVER

and the cursor went to the left and remained there. I then typed

TYPE A LINE-FEED
AFTER EACH RETURN,
AND TWO WHEN READY FOR A REPLY!

then return and two line-feeds.

We typed a few more messages back and forth but finally decided to get to work. I typed that I would send a file, and that to receive it the steps would be:

1. use Control-E to return to the menu; and

2. type T ARCTAN.INT to receive file ARCTAN.INT.

If my directions, given above, were followed, the other operator would be set up to receive the file. Next, I needed to send the file he was expecting to receive. First I typed a Control-E, which returned the menu to the screen of my micro. The choice to send a file was "S", so I then typed

S ARCTAN.INT

to send the file. After a few messages indicating that the first block sent had not been acknowledged, I then saw

SENDING BLOCK 01
SENDING BLOCK 02
SENDING BLOCK 03

and so on, one after the other on my screen. This was a small file of less than 2K bytes, and in only a couple of minutes I received the message

FILE TRANSFER COMPLETE.

I then picked up the phone from the modem cups. This caused the carrier light to go out on the other modem, so the other operator picked up his phone and we talked by voice. We agreed it was going pretty well and that we would continue the same method but, rather than going back to voice again between files, we would go instead to terminal mode to arrange for the next file name to be transferred. We then put the phones back on the modems and transferred the other 30 or so files in a manner similar to the transfer of the first file.

The MODEM7 program checks each block for errors, re-sending blocks as needed to insure that files transferred are true and accurate copies. In addition, the JRT Pascal disk had a program which produces a checksum for each file and a file with the proper checksums so that correctness can be assured. Some of the files were large and took as long as 10 or 15 minutes with the 300 baud (approximately 30 characters per second) modem. The MODEM7 program allows sending several files with one command but, to avoid complications, this option was not used. However, the next time, since we are familiar with the program, we will probably use what is known as the batch option, with which an entire disk of files can be sent by typing

SB *.*

in this case, based on actual experience, we found that a communications program provided a method to accurately transfer programs between two very different micros, solving a problem which had no other apparent solution. Since both micros were equipped with modems for communication with the Amdahls, no equipment purchase expenses were involved. The use of an excellent public domain program also meant that there were no software purchase expenses. The MODEM7 program can transfer about 100,000 bytes per hour using a 300 baud modem. The use of a more expensive 1200 baud modem would have increased the transfer rate to 400K bytes per hour. Although more expensive hardware and better use of the program op-

tions could have speeded the task, a significant compiler was added to a TTI micro in about three hours, which otherwise could have required nearly that many hours of paperwork to purchase! Of even greater importance is that TTI research might have been delayed at least a month before delivery could have been made of the needed program in the proper disk format.

If you have suggestions or comments relating to this column, send them to:

Dale L. Schafer
Texas Transportation Institute
Texas A&M University College Station, Texas 77843

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GET A "SUBSCRIPTION" TO BENCHMARKS

BENCHMARKS is a vital link between the NTSU Computing Center and the users of our facilities. It is important for all users of the computing facilities to maintain a file of these newsletters because they contain materials which will periodically update existing documents as well as information and suggestions on uses of OS-MVT, MUSIC, the HP-2000, and other resources available to NTSU students and faculty. To facilitate the dispersal of BENCHMARKS, *** FREE *** subscriptions are now available. To receive yours, send the following information to us either by "snail mail" (the post office or campus mail) or electronically, through the MAIL facility on MUSIC.

Name -----

Mailing Address -----

PLEASE GIVE A CAMPUS ADDRESS (NOT BOX) IF POSSIBLE - It's Cheaper !

PLEASE RETURN TO:

Academic Computing Services
The Computing Center
NT Box 13495
North Texas State University
Denton, TX 76203